

## Not-So-Silent Clams Show How Man Has Played Hob With His Environment

Small freshwater clams are mutely proving what most of us have suspected since studying ancient history in school; man has been playing hob with his environment for centuries.

The Atomic Energy Commission's Oak Ridge National Laboratory has been studying the quantities of non-radioactive trace elements in clam shells. Current investigations suggest that the quantity of these elements deposited in freshwater mollusks may be used to show changes in chemical composition of surface water brought about by man's activities and changes in use of the land since prehistoric times.

As part of its research, the AEC studies the potential bio-environmental effects of radiation to determine the movement, fate and effect of man-made radioactivity in the natural environment. During such investigations, Dr. Daniel J. Nelson of ORNL has been analyzing contemporary clam shells and those from prehistoric Indian shell heaps along the Tennessee River for their strontium, barium, magnesium, manganese, sodium, and potassium concentrations. With the exception of sodium

and potassium, the quantities of the other trace elements were 50 to 100 per cent greater in the prehistoric shells than in the shells of the mollusk species currently in the river. Since the deposition of these alkaline earth elements in shells is proportional to their concentrations in the environment, the river waters in prehistoric times are judged to have contained more of those dissolved elements.

It appears likely that the concentrations of these earth trace elements are the result of changes in the landscape resulting from colonization. Prior to the arrival of white settlers, this region was heavily forested. Carbon dioxide from the forest floor combined with the ground waters and formed carbonic acid which dissolved the carbonate rocks of the area, thus putting the trace elements into solution.

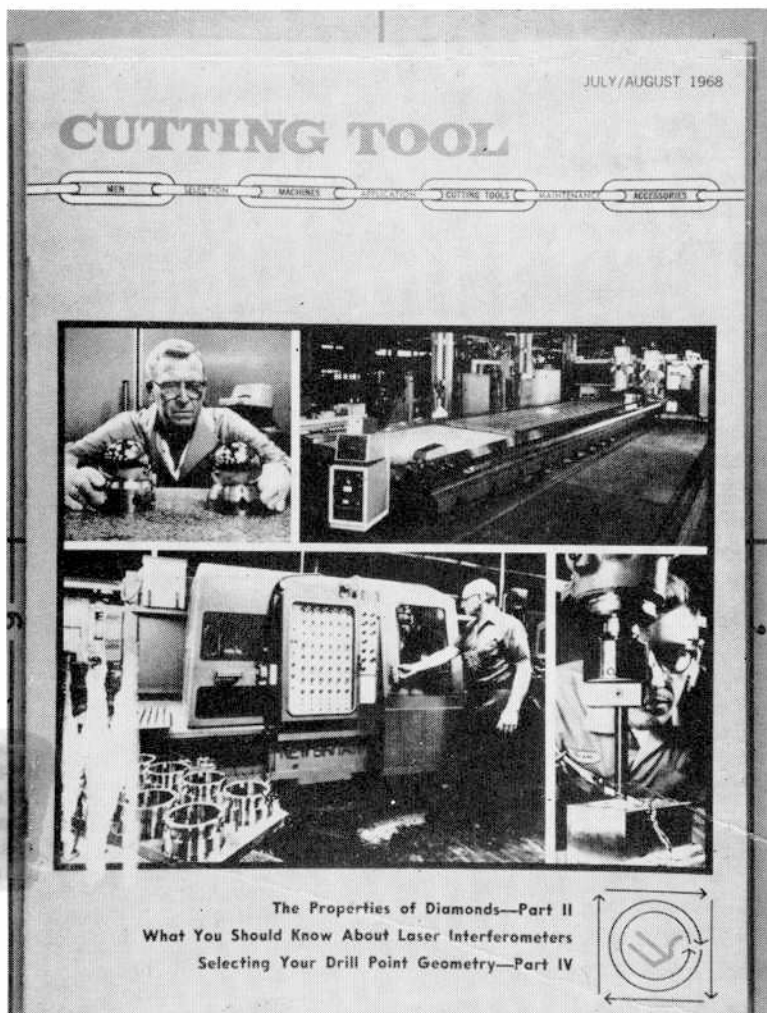
The cutting of the forests for lumber and farming reduced the carbon dioxide in the soil and also reduced the proportion of rainwater going through the soil and entering ground water.

Scientists infer that ground wa-

Continued on Page 6



**TWO PATENT APPLICATIONS ARE MADE IN THE NAME** of two Y-12ers . . . William L. Harper and Wesley E. Smith. Their joint developments: 'Process for Synthesizing Truxene,' and 'Process for Making Carbon and Graphite Structures from Indene Derivatives' merited recent applications in the name of the U. S. Government. Both men are in Y-12's Chemistry Development. From left, W. J. Yaggi congratulates Harper, and from the right J. M. Schreyer congratulates Smith.



**J. E. CLEMONS, G-3 PROCESSING**, is seen on the cover (upper left photo) of the current Cutting Tool magazine. The publication picked up the story of Y-12's involvement in twin tungsten spheres manufacturing for the University of Virginia. The twin four-inch spheres were machined by conventional methods to within one-sixteenth of an inch finished diameter on a conventional horizontal mill. Special high precision turning and lapping machines developed here then were employed to finish the spheres to their almost identical diameters (with ten-millionths of an inch). The spheres are to be used by the University's Department of Aerospace Engineering and Engineering Physics in experiments to determine with greater precision the universal gravitational constant. The work is supported by the National Aeronautics and Space Administration.

## ASCET Meeting Tonight in Clinton

The Oak Ridge-Knoxville chapter of the American Society of Certified Engineering Technicians is set for tonight, Wednesday, September 25.

The 7 p.m. dinner meeting will be held at the Park Hotel, Clinton. The special bosses' night program is planned to include an orientation period for prospective members and employees.

Bill Norwood, T.C.A., will be the featured speaker.

More information may be obtained from Billy H. Montgomery, 109 Miramar Circle, Oak Ridge, telephone 483-7732, or extension 3-7208.

## Badge Exchange Is Set For Fall Term

New fall badges go up in the racks Monday, September 30. The last quarter of the year badges will have a yellow bottom.

Employees may exchange their present blue-bordered badges in the self-service racks through 11 p.m., Wednesday, October 10. The old badges will not be honored at the portals-of-entry after that time.

## SAFETY SCOREBOARD

The Y-12 Plant Has  
Operated  
184 Days Or  
5,534,000 Man-Hours  
(Unofficial Estimate)  
Through September 22  
Without A Disabling Injury  
SAFETY AT HOME,  
AT WORK, AT PLAY

## Health Physicists To Hear AEC's Schoen On Air and Water Pollution Controls

Arthur A. Schoen, chief of the pollution control branch of the Atomic Energy Commission in Washington, is guest speaker at this month's Health Physics Society meeting. His subject will be "Nationwide Efforts to Abate Air and Water Pollution."

Schoen has been connected with the atomic energy program since his graduation from Dartmouth College in 1948. He was first employed by the General Electric Company at the AEC's Knolls Atomic Power Laboratory. He joined the AEC's Oak Ridge Operations Office in 1956 as a health physicist in the research and development division. In this capacity, he was concerned with the radiation protection, industrial hygiene, and industrial medical programs of the ORO office and its contractor installations in Oak and at several other sites in Kentucky, Ohio, Missouri, New York, New Jersey, and Puerto Rico. He was also concerned with the health physics and waste disposal research programs and was a member of the steering committee for the joint, interagency, Clinch River Study. In 1961 Schoen transferred to the division of operations safety at the AEC headquarters in Washington as a member of the materials processing safety branch. There he was concerned with the health and safety aspects of AEC production, manufacturing and chemical processing operations, waste management and environmental pollution control until he assumed his present duties last year. In addition to his other duties he is a member of the subcommittee on standards, and the subcommittee on environmental surveillance of the federal



Arthur A. Schoen

committee on environmental quality.

The East Tennessee Chapter of the HPS meeting is set Monday, September 30, at the Oak Ridge Country Club. Y-12er C. M. 'Hap' West will moderate the program.

Cost of the dinner meeting is \$3.50 per person, and guests are welcomed with members. Reservations for dinner must be made by Friday, September 27, and may be made through Max Scott, extension 3-7216.

The social hour starts at 6:30 p.m. Monday, and the buffet dinner starts at 7:30 . . . with the program slated for 7:30 p.m.

## DAS CAPITAL

Rudolph Hametovich Nureyev, the Soviet ballet dancer, who danced his way across the Iron Curtain, recently got an education in capitalism. He was accused by the IRS of owing some back income taxes! Now there's a quick education!



# The Bulletin

Published Weekly For The  
Y-12 Employees Of  
UNION CARBIDE  
CORPORATION



NUCLEAR DIVISION

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Industrial  
Editor's  
Association

American Association Industrial Editors

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## SNT Meeting Set At Alexander Inn

The American Society for Non-destructive Testing will hold its next meeting Tuesday, October 8, at the Alexander Motor Inn, Oak Ridge. The social hour begins at 6:30, with dinner at 7, and the technical meeting at 8 p.m.

Speaker for the October meeting will be Caius V. Dodd, Metals and Ceramics Division, Oak Ridge National Laboratory. His subject will be "An Oak Ridge System for Analysis of Eddy Current Problems with a Time-Sharing Computer."

A native of Memphis, Dodd received his BS degree in engineering physics from U.T. in 1959. Since 1960 he has been a member of the Metals and Ceramics Division of the Oak Ridge National Laboratory doing development work on nondestructive testing with major emphasis on electromagnetic testing. During this time he was attending U.T. as a part-time graduate student. He received his MS in physics in 1965 and his Ph.D. in physics in 1967. Dodd is the author of a number of technical papers in the field of eddy currents.

## 'Native' Crafts Shows Are Planned

Members of the Foothills Craft Guild of Oak Ridge will participate in two sales and show events in Knoxville this week.

Today, the local craftsmen will be featured at the American Heritage Festival at the Ramsey House, Knoxville. The annual country market and auction is set from 10 a.m. today, Wednesday, September 25, from 10 a.m. until 4 p.m.

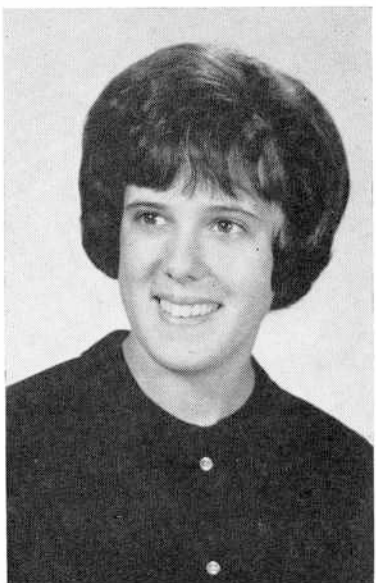
Renchenbach Galleries, off Kingston Pike, will present the craftsmen Friday, September 27, from 9 a.m. until 9 p.m. and again on Saturday, September 28, 9 a.m. until 6 p.m. Members of the Guild will demonstrate their crafts at this sale.

Featured among the craftsmen are Harold Fell, Machine Tool Engineering (dulcimers); Betty Emerson (Mrs. Earl E., Electrical) hooked rugs; Marshall Lockhart (Mrs. George, Product Engineering), stone and wood stables, mobiles, wood chimes, etc.; Barbara Hackett (Mrs. William, Metallurgical Development), copper enamel jewelry, bowls.

The public is invited to both shows.

### PROGRESS—A TIDE

"Progress is a tide. If we stand still, we will surely be drowned. To stay on the crest, we have to keep moving." Harold Mayfield.



Mrs. James Lyon Burgess

### BURGESS — MOORE

Mr. and Mrs. Emmett L. Moore announce the marriage of their daughter, Miss Patricia Ann Moore, to Mr. James Lyon Burgess. The groom is the son of Dr. and Mrs. W. B. Burgess, 116 Berwick Lane, Oak Ridge. Mr. Moore is in Y-12's Utilities Administration, and they live at 211 North Purdue Avenue, Oak Ridge.

The marriage took place at Grace Lutheran Church, with the Reverend Harry J. Lorenze officiating.

Mrs. Carla Monk was the bride's only attendant, and the groom's father served as best man.

Out-of-town visitors for the rites were Mr. and Mrs. Emmett L. Moore Jr., Gurnee, Illinois; Mr. and Mrs. R. W. Moore; and Mr. and Mrs. J. L. Wolfe, Huntsville, Alabama.

After the ceremony, a reception honored the couple at the home of Mr. and Mrs. Joe T. Faulkner, 125 Cumberland View Dr. Nancy and Lucy Faulkner and Mrs. Larry Moore assisted with the serving.

The couple is at home at 213 E. Unaka Avenue, Johnson City, where the groom is a junior at East Tennessee State University.

## Social Security Talk Set For Employees

Employees and their wives over 60 are cordially invited out Thursday, October 3, to hear Social Security and Medicare benefits explained.

On hand will be R. J. Eldridge, district manager of the Social Security Administration, Knoxville district. He will present the latest information regarding the Social Security Law as well as an explanation of the Medicare Program. Eldridge will be introduced by Roger F. Hibbs, vice president of the Nuclear Division, Union Carbide Corporation.

The meeting is set for Thursday, October 3, at 7:30 p.m. at the Oak Ridge High School Auditorium, Oak Ridge. Employees who have already retired are also welcomed at the meeting.

Retirement planning is one of the most imperative aspects of our society, as more and more Americans move into the retired ranks.

### MODERN FABLE

In this modern world you get only what you pay too much for!

# Cheatwood, Goins, Morphis, Smith And Wray Are Retiring Next Monday

September 30 marks normal retirements for five Y-12ers. Roy W. Cheatwood, Area Five Maintenance; Henry D. Goins, Buildings, Grounds and Maintenance Shops; Vernoy Morphis, Process Maintenance; Otis B. Wray, Buildings, Grounds and Maintenance Shops; and James L. Smith, Electrical Engineer, all end long careers in Y-12 Monday.

Roy W. Cheatwood was born in Morgan, Alabama. He came to Y-12 September 21, 1953, after working in the area with Stone & Webster, J. A. Jones and the Tennessee Valley Authority.

From 1919 until 1928 he farmed in Cullman, Alabama. From 1928 until 1938 he was with the Phillips & Company, Goulds, Florida. From 1938-1941 he worked with the Pontiac Motors, Pontiac, Michigan. From 1941 until 1942 he was with the Decatur Iron and Steel Company, Decatur, Alabama. From 1943 until 1948 he was with the W. M. Kellogg Co., Toledo, Ohio. He came to this area in 1948.

The Cheatwood home is at Route 3, Clinton, and they have one son, Roy W. Cheatwood Jr. Mrs. Cheatwood is the former Stella Green.

The retiree has been ill for some time and is recuperating at his home.

Another Y-12er retiring this month has been off ill . . . Henry D. Goins, Buildings, Grounds and Maintenance Shops.

### Railroad Veteran

A native of Harriman, Goins came to Y-12 August 9, 1951. He worked with the Southern Railroad from 1919 until 1945, and with the L&N from 1945 until 1948. He worked with Maxon Construction Company from 1948 until he came to Y-12.

Mrs. Goins is the former Macie Mickends. The couple lives at Route 3, Harriman. They have sons David, Knoxville; Onal, Harriman; and Calvin, who works in Y-12. Daughters Arlene, Juanita and Marlyn are at home.

The retiring Goins likes to hunt and fish, but his actions have been limited this Spring and Summer by his illness.

Vernoy Morphis, Process Maintenance, also retires next week. He is a native of Lewisburg, Tennessee, and came to Y-12 April 26, 1954. He worked on his farm from 1917 until 1925 at Ethridge, Tennessee. From then until 1927 he did carpentry with the V. L. Nicholson Company, Nashville. From 1927 until 1930 he was with Foster-Creighton, Nashville, and from 1930 until 1953 he worked with the Steiner & Lightman Company as an electrician.

### Live In Oak Ridge

The Morphises live at 269 Jefferson Avenue, Oak Ridge. Mrs. Morphis is the former Lula Mae Pettes. The couple has three sons, James T., Nashville; Frank B., Big Springs, Texas; and Vernon, Oak Ridge. There are also 11 grandchildren.

James L. Smith, Electrical En-



"The man we want must be under 30 and have at least 20 years of experience."



Roy W. Cheatwood

6-14079



Henry D. Goins

6-14080



Vernoy Morphis



James L. Smith

6-14081

gineering, came to Y-12 September 21, 1953. He was born in Anniston, Alabama, but was reared in Virginia where his father was a Presbyterian minister. He attended Hampden Sydney College, Virginia. He worked with the U.S. Engineers in foreign service and with Reynolds-Smith and Hills Architects before coming to Roane-Anderson and then to Carbide. He is a registered engineer in both Tennessee and Florida.

Mrs. Smith is the former Helen deZern. They have four children. . . Mrs. W. W. Garnet, Ft. Lauderdale, Florida; Mrs. James C. Smith, Winter Haven, Florida; James L. Jr., a major in the U.S. Army, now in the Pentagon, and Wade Cothran who lives in Plantation, Florida.

### Moving To Florida

The Smiths have been living at 106 Virginia Road, but plan to move to Indian Rocks Beach, Florida, where there will be lots of golf, for both Smiths are avid golfers. Also plenty of fishing and travel are in store for them . . . after proof-reading Mrs. Smith's latest book, "On the Rim of the Canyon." They plan a world tour later with Smith's brother and his wife on a Norwegian freighter.

Otis B. Wray, Y-12's fifth retiree for September, is a native of Lake City, where he still lives.

He worked from 1926 until 1927 with the Alamo Motor Company, El Paso, Texas. Briefly he was with the Southern Pacific Railroad there, and farmed in Russellville, Kentucky from 1927 until 1932. He worked in trucking in Frankfort from 1932 until 1934, traveled as a salesman from 1936 until 1941. From 1941 until 1944 he was with sub-contractors of



Otis B. Wray

TVA projects in this area. He came to Y-12 November 12, 1944.

Mrs. Wray is the former Eula Martin . . . and they have a son, John T., a dentist at Halls Cross Rd. There are two grandchildren.

Wray plans to take it easy in his retirement.

Y-12 extends best wishes to all five of its Fall retirees.



Ride wanted from Hotchkiss Valley Road, Lenoir City, to Biology Portal, straight day. Dale Knox, plant phone 3-5935, home phone Lenoir City 986-8303.

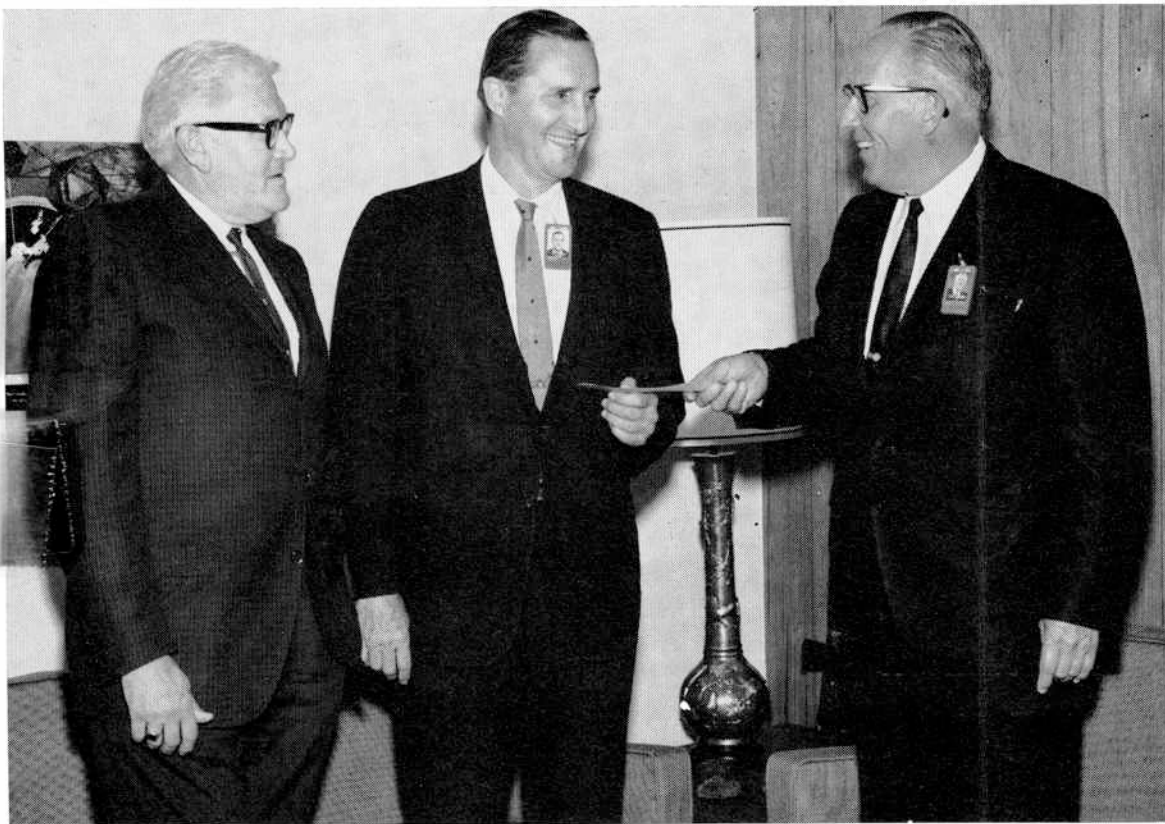
Say it with safety and save the flowers.





# UNITED FUND SPECIAL

For Employees of the Nuclear Division, Union Carbide Corporation



**NUCLEAR DIVISION CONTRIBUTION**—Dr. C. E. Larson, President of Nuclear Division, Union Carbide Corporation, presents a check for \$10,000 to John T. Reeve, Chairman of the 1968 United Fund drive. The check represents Carbide's corporate contribution to the campaign. From left are: Marvin F. Schwenn, Chairman of the drive for the three Oak Ridge facilities; Mr. Reeve and Dr. Larson.

## Knox County UF Requires More Help for Agencies

The Knox County United Fund, which consists of 33 agencies and the Knox County Chapter of the American Red Cross, is seeking to raise \$1,273,660 in the 1968-69 campaign. The budget is considered a realistic appraisal of the monetary needs required to operate the member agencies.

Some \$266,116 of this budget has been requested for the Knox County Chapter of the American Red Cross, which performs a variety of community services ranging from care and rehabilitation of disaster victims to the conducting of numerous training classes in water safety.

Following is a list of United Fund member agencies with the budget request in parentheses:

**AMERICAN HEALTH ASSOCIATION** (\$1,643)—a national organization offering educational materials and assistance to local communities in controlling such problems as social diseases.

**ARNSTEIN JEWISH COMMUNITY CENTER** (\$23,690)—a neighborhood community center open to all members of the community. It has programs for all ages, including social and cultural activities and athletics.

**ARTHRITIS FOUNDATION** (\$17,663)—provides clinics at U.T. Hospital for persons with arthritis and rheumatism and offers educational materials and programs on these crippling diseases.

**BOY SCOUTS OF AMERICA** (\$86,068)—offers character-building, citizenship training and physical fitness programs for boys from 8 to 17 years of age. Scouting activities have been applied to an Inner City project since 1965 to bring scouting to boys in lower income areas and to help curb

juvenile delinquency and school dropouts.

**BOYS' CLUB OF KNOXVILLE** (\$91,300)—operates building-centered programs serving boys from age six to 20, most of whom are from low to middle income groups.

**CHILD AND FAMILY SERVICES** (\$105,333)—attempts to strengthen family life by assisting families who wish to adopt children, helping parents and young people deal with problems, and providing for the welfare of children.

**COUNCIL ON SOCIAL WORK EDUCATION** (\$899)—attempts to safeguard, secure and utilize more effectively the millions of dollars contributed annually for social workers and sufficient facilities to educate these workers.

**DALE AVENUE SETTLEMENT HOUSE** (\$31,131)—provides recreation and group work to serve needs and interests of the neighborhood. The winter program includes kindergarten, Golden Circle Club, Homemakers Club, classes in sewing, cooking, music, crafts, gym and special activities for teenagers.

**DANIEL ARTHUR REHABILITATION CENTER** (\$8,400)—described in Anderson County story on this page.

**FLORENCE CRITTENTON AGENCY** (\$22,500)—offers medical aid and casework care to unmarried, pregnant women to enable them to return to a normal and useful place in society.

**GIRLS' CLUB OF KNOXVILLE** (\$19,649)—offers a comprehensive program to girls between the ages of 8 to 17, over 90 per cent of

## Goal of Division Set at \$241,000

The following is a capsule summary by counties, together with the United Fund goal for each of the Nuclear Division plants in Oak Ridge:

COUNTY REQUESTS	
Anderson .....	\$150,000
Knox .....	54,000
Loudon .....	8,000
Roane .....	23,000
Morgan .....	4,000
Other .....	2,000
	<b>\$241,000</b>

PLANT GOALS	
Y-12 .....	\$ 90,000
ORNL .....	92,000
ORGDP .....	34,000
General Staff .....	15,000
	<b>\$231,000</b>
Corporate Gift .....	10,000
<b>GRAND TOTAL .....</b>	<b>\$241,000</b>

whom come from low income families.

**KNOX AREA MENTAL HEALTH ASSOCIATION** (\$20,000)—promotes improved care and treatment for mentally afflicted persons, supports research and provides educational programs and materials.

**KNOX COUNTY ASSOCIATION FOR RETARDED CHILDREN** (\$21,800)—conducts special education classes for trainable retarded children in the city schools and in six county schools. Special recreation programs include a summer day camp.

**KNOXVILLE CEREBRAL PALSY CENTER** (\$63,908)—operates and maintains a rehabilitation center. The program includes diagnostic, clinical, remedial and training services. The baby clinic provides training for cerebral pal-

(Continued on Next Page)

## United Fund in Anderson County Seeks \$227,000 for 19 Agencies

A goal of \$227,000 has been set for the 1968-69 Anderson County United Fund Drive. This sum will go toward support of 18 community chest agencies and the American National Red Cross.

Of this requested figure, \$45,771 is budgeted for two Red Cross chapters in the county—\$14,540 for the Anderson County chapter located in Clinton and \$31,231 for the Oak Ridge chapter. These chapters cooperate with the national organization in providing services to military families and veterans; contribute to national and local disaster preparedness and relief; conduct water safety, first aid and youth training programs; sponsor adult and junior Gray Lady organizations; and provide a blood replacement service at Oak Ridge Hospital.

Other member agencies and their budget requests are listed as follows:

**ASSOCIATION FOR RETARDED CHILDREN** (\$4,920)—operates a nursery class during the school year and a summer playground for retarded children. It also sponsors a monthly dance for teenagers.

**CRIPPLED CHILDREN'S COMMITTEE** (\$400)—provides help and medical treatment to deserving crippled children and adults throughout the county who do not qualify for other health and welfare assistance. Braces, special shoes, and prosthetic devices are typical of the items provided to help these individuals.

**EMERGENCY AND RESCUE SQUAD** (\$4,920)—is composed of volunteers prepared and equipped to assist in any catastrophe. Its services are constantly used throughout the county for resuscitation, recovery of drowned bodies, searching for lost persons,

fighting forest fires and promotion of safety, lifesaving and accident prevention.

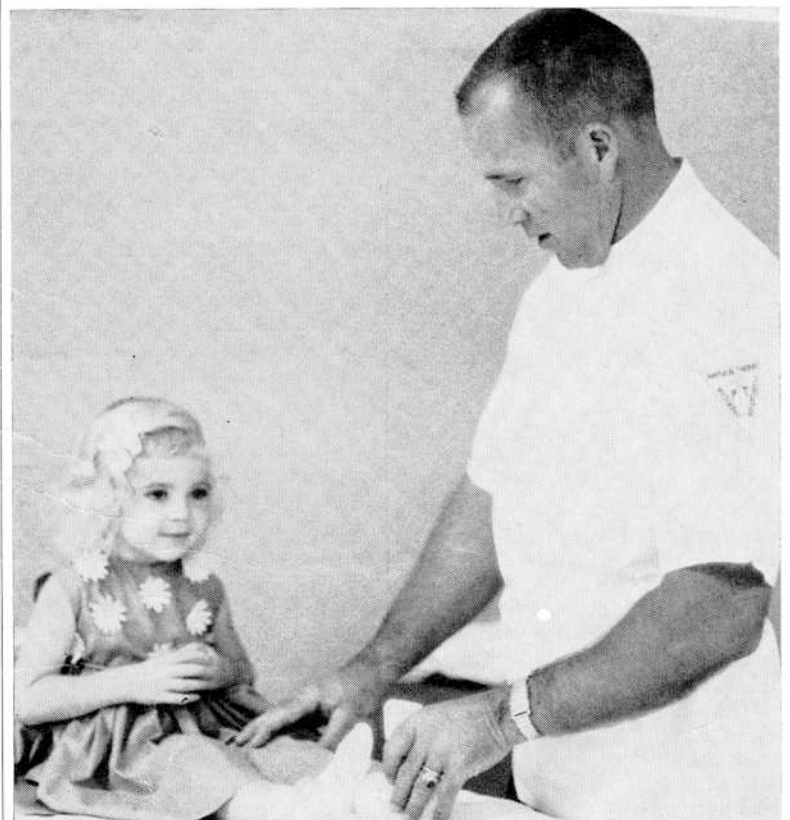
**ARTHRITIS FOUNDATION OF ANDERSON COUNTY** (\$4,800)—operates a clinic at the Daniel Arthur Rehabilitation Center staffed by doctors and nurses trained to handle arthritic cases. Patients are referred to this clinic by family doctors, welfare offices and health departments.

**BOY SCOUTS OF AMERICA** (\$30,573)—provides training in character development, citizenship and physical fitness. More than 3,000 boys in the eight to seventeen age group are now participating in scouting activities in Anderson County.

**BOYS' CLUB** (\$21,300)—provides professionally supervised activities for approximately 850 school age boys. Programs at the clubhouse, located on Jefferson Circle, include manual arts, indoor games, football, basketball, baseball and hobby clubs.

**CAMP FIRE GIRLS** (\$13,500)—provides training in citizenship, leadership and various educational programs. More than 1,000 girls and 289 adult volunteers participate in the Anderson County chapter.

**CHILDREN'S WELFARE AND DISTRESSED FAMILIES COMMITTEE** (\$1,700)—furnishes immediate, temporary help to distressed Anderson County families and individuals until the persons in need can be referred to proper agencies. The help provided by this committee includes food, clothing, medical supplies, furniture, temporary rent, funeral arrangements and assistance with legal matters. This program provides (Continued on Next Page)



**HELP WHEN IT'S NEEDED**—Meet Little Terri, who knows firsthand the importance of the United Fund agencies. Little Terri has rheumatoid arthritis. She receives therapy each day at the Daniel Arthur Rehabilitation Center.





Randolph

Fritts

Robinson

Clevenger

Evans

Atchley

Dunlap

Dixon

Livingston

Beeler

## Anderson UF . . .

(Continued from Last Page)  
vides aid to an average of 300 persons each year.

**DANIEL ARTHUR REHABILITATION CENTER** (\$18,000) — serving six counties, is dedicated to the total rehabilitation of all types of handicapped children and adults, including the physically or mentally handicapped and emotionally disturbed. The Center carries out an integrated program of diagnosis, therapy and education. More than 500 residents of Anderson County alone are receiving help from the Center.

**EMORY VALLEY SCHOOL** (\$9,500)—provides a program of training and educating Anderson County children, ages six to 21, who have been diagnosed as trainable mentally retarded. Approximately 60 children currently are receiving training at the school.

**GIRL SCOUTS** (\$17,500)—serving 18 counties, is dedicated to inspiring girls with the highest ideals of character, conduct, patriotism and service. The program in Anderson County provides diversified troop, camp and training activities for 1,500 girls.

**HOLIDAY BUREAU** (\$2,500)—makes Christmas gifts and food baskets available for children in needy Anderson County families and assists in operation of year-round thrift shops in Clinton and Oak Ridge. Some 1,000 families are helped each year by this agency.

**MENTAL HEALTH CENTER** (\$16,000) — provides psychiatric and psychological diagnosis and treatment for the mentally ill and emotionally disturbed. During the past year, a total of approximately 5,000 professional hours were spent in patient contacts. The Center offers the only round-the-clock emergency service program in the state.

**PLANNED PARENTHOOD** (\$9,443)—is a new agency affiliated with the Planned Parenthood—World Population. It makes information and services available on the best family planning methods available to every woman in Anderson County, regardless of income. It provides hospital visiting, home visiting and Public Health clinic assistance programs.

**SCARBORO DAY CARE CENTER** (\$5,600) — provides competent, low-cost daily care for preschool children of working mothers. About 50 children from ages two to six attend the Center daily.

**U.S.O.** (\$1,550)—provides recreational and entertainment activities for personnel in the American armed forces stationed throughout the world. The sum requested is the Anderson County share to support this agency.

**Y.M.C.A.** (\$4,000) — is devoted to helping boys become strong in body, mind and spirit. It sponsors a Gra-Y program for grade or elementary school boys approximately nine to twelve years of age and operates a summer day camp for boys aged six through twelve.

**Y.W.C.A.** (\$7,100)—sponsors a number of recreational and personal development programs for young people. In 1967, the sum-

## 'Giving The United Way'

We in the Nuclear Division wholeheartedly support the concept of giving the United Way. The agencies supported by the United Fund play vital roles in the health and well-being of our community.

I want to urge all employees to participate in this year's fund raising campaign. I am confident that through your generosity and interest in the welfare of others, the Nuclear Division will once again be a leader in giving the United Way.

*C. E. Larson*  
President  
NUCLEAR DIVISION

## Knox County Goal Over \$1 Million

(Continued from Last Page)

sied infants from the age of six months and up.

**KNOXVILLE NURSERY SCHOOLS** (\$21,341)—operated to care for children whose mothers or guardians work outside the home.

**MENTAL HEALTH CENTER** (\$16,482)—diagnoses, treats and attempts to prevent mental illness. It offers consultation and in-service training programs for members of the courts, school teachers and other agencies.

**NATIONAL ASSEMBLY FOR SOCIAL POLICY AND DEVELOPMENT** (\$580)—coordinates the broad field of social work and promotes the idea that social welfare means the well being of all people.

**NATIONAL COUNCIL ON CRIME AND DELINQUENCY** (\$1,650) — assists local law enforcement officers in an advisory capacity on a national basis.

**NATIONAL RECREATION AND PARK ASSOCIATION** (\$1,011)—advises local communities on ways to improve recreational facilities and trains skilled leadership for the field of recreation.

**POISON CONTROL CENTER** (\$3,600)—provides an emergency service for individuals and physicians by offering immediate treatment or telephone advice for victims of poisonings or overdoses.

**SALVATION ARMY** (\$58,331)—provides temporary assistance and lodging for homeless families as well as individuals pending referral to other service agencies. It provides counseling and referral services regarding marital discord, parent-child relationships, economic and budgeting problems, child care, physical or mental illness, personal adjustment, employment and problems of the aged.

**GIRL SCOUTS** (\$58,500)—provides training in citizenship as

mer program for young people attracted 181 in Oak Ridge and 45 in Norwood. More than 800 adults participated in classes and clubs and 575 attended special events sponsored by this agency.

In addition to the requests by the agencies, an additional \$6,000 is required for community chest administrative operations and \$2,500 is needed for United Fund Drive expenses. An additional \$8,109 is requested as a shrinkage fund for unpaid pledges.

well as crafts, arts and physical education training for girls from seven to seventeen years of age.

**TRAVELERS AID SOCIETY** (\$36,675) — provides professional services, including financial assistance, when necessary, to stranded persons.

**UNITED CEREBRAL PALSY ASSOCIATION** (\$21,574)—participates in a research program to find new ways of treating and preventing cerebral palsy. This agency furnishes transportation for cerebral palsied children and operates a summer day camp.

**UNITED COMMUNITY SERVICES** (\$109,486) — administers the United Fund campaign. Of this budget, \$44,608 is spent for staff and administrative services; \$35,860 is required to carry out the campaign, and \$29,018 is budgeted for the Health and Welfare Planning Council.

**U.S.O.** (\$10,775) — provides social, spiritual, educational and recreational activities for men and women in the Armed Forces and their dependents.

**VOLUNTEERS OF AMERICA** (\$28,747) — provides emergency shelter to women and children and care to unwed mothers until they can be referred to other agencies for assistance.

**Y.M.C.A.** (\$90,101) — operates four facilities in the county and sponsors school Hi-Y programs. It offers programs of educational, social, recreational and Christian fellowship activities for men and boys from age six to retirement.

**Y.W.C.A.** (\$90,237) — operates two facilities in the county. It offers a wide variety of educational, social, recreational and Christian fellowship activities for girls and women.

In addition to the budget requests for each agency, a special fund of \$4,794 will be used for improvement or enlargement of agencies as required. An additional \$65,257 is included in the overall total as a reserve for unpaid pledges.

## Marvin Schwenn To Head UF Drive In Three Plants

Marvin F. Schwenn, Manager of Administration at the Oak Ridge Y-12 Plant, has been named general chairman for the United Fund drive at the Nuclear Division's three facilities in Oak Ridge. Mr. Schwenn headed the successful United Fund drive at the Y-12 Plant two years ago.

Chairmen for the individual plants are:

**Oak Ridge Gaseous Diffusion Plant**—Ernest C. Clevenger, Alvin P. Dunlap, and Marion H. Randolph.

**Oak Ridge National Laboratory**—Norman Beeler, James M. Dixon, and Robert S. Livingston.

**Oak Ridge Y-12 Plant**—Glenn A. Atchley, George W. Evans, and Charles E. Robinson.

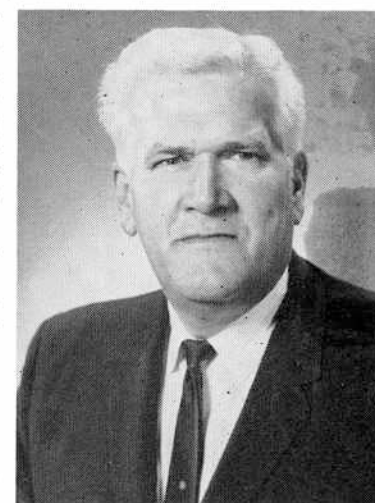
**General Staff** — Charles A. Fritts.

Others participating in the fund drive are Richard G. Dunn, assistant chairman, and Ronald E. Gamrot, computer coordinator. The drive will start on October 1 and continue to the end of the month.

Mr. Schwenn, a native of Madison, Wis., received his B.S. in chemical engineering from the University of Wisconsin.

He has been a member of the Nuclear Division since 1944 when he joined the staff at the Oak Ridge Gaseous Diffusion Plant. Prior to coming to Oak Ridge he was a member of the staff of the Allied Chemical and Dye Corporation and the Hercules Powder Company.

Mr. Schwenn is married to the former Helen Rose Kopp. They have two daughters, Margaret, a recent graduate of Transylvania University; and Carolyn, a student at The University of Tennessee.



Marvin F. Schwenn

"We are confident that this year's drive will be highly successful," Mr. Schwenn stated. "This is a very important project and both management and the unions heartily endorse the United Fund and the agencies it represents."

## UF Borrows Page From Big Orange

Something new will be added at entrances to the Oak Ridge plants during the next few days. "Borrowing" a page from U.T., special campaign signs, announcing that "This is United Fund Country," are being set up at entrances to each facility.

The signs feature three running backs (K-25, Y-12, X-10), moving toward the goal for each plant. The signs will be changed periodically to show the progress in reaching the three-plant goal. The combined goal is \$241,000.



**DEBBIE WAS HELPED**—Debbie knew her parents didn't get along. This had a serious impact on her. Her school work suffered and there was an adjustment problem at her home. This finally prompted Debbie's parents to accept referral to Child and Family Services. As the parents resolved their own problems after continued counseling, Debbie felt less tense and anxious. Her school work improved and she became very well adjusted.







**BILL DENTON AND JACK HUFF**, for their shooting abilities in the All Carbide High-Power Rifle League, are shown with their rewards. Bill, Electrical Maintenance, holds his Winchester Model 70-target rifle he won for the 2nd place in the handicap division, and Huff holds a gift certificate he took for the 2nd place in the scratch division.

## Big Five Take Early C Standing

The Big Five broke into the early lead of the C Bowling men last week with a three-point win over the Instrument Engineers. Likewise, the Badgers beat the Jokers Five, and the Rollmasters downed the Parbusters.

Posting four points were the Rounders over the Fireballs, and the Royal Flush by the HiLifers. The Sunflowers sank the Invalids by three.

Bill Ladd, Rollmasters, put a 258 single scratch game on ice, pushed to a 265 handicap single. His 634 series in scratch was high also. J. C. Booker, Royal Flush, rolled a 691 handicap series.

The Rollmasters rolled highs all the way . . . singles of 946 scratch, 1093 handicap . . . series of 2549 and 2990.

League standings follow:

Team	W	L
Big Five	7	1
Badgers	6	2
Rollmasters	5	3
Rounders	5	3
Royal Flush	5	3
Jokers Five	4	4
Instrument Engineers	4	4
HiLifers	4	4
Invalids	3	5
Sunflowers	3	6
Parbusters	2	8
Fireballs	0	

## Pay-Off Tilt Set In HossShoe

The Allmon-Moody team won a forfeit victory over Young-Holsopple last week in the Horseshoe League. Gray-Copeland also won likewise from Hutto-Tillery. Reed-Stephens won six from Luckett-Brock in play, and Eubanks-Raper took seven from Wyatt-Hensley.

The big Case-Miller — Hutto-Tillery bout was postponed. It will determine the victor of the league's last half.

League standings follow:

Team	W	L
Case-Miller, ORNL	59	4
Durham-Bailey, ORNL	51	12
Allmon-Moody, ORNL	49	23
Reed-Stephens, Y-12	48	24
Eubanks-Raper, Y-12	41	31
Gray-Copeland, ORNL	38	34
Wyatt-Hensley, Y-12	30	42
Luckett-Brock, ORNL	24	48
Young-Holsopple, ORNL	9	63
Hutto-Tillery, ORNL	2	70

## Recreation



calendar

**Saturday, September 28**

**TURKEY SHOOT:** 10 a.m., Oak Ridge Sportsmen's Association range. Sponsored by E, F, G, H and J Shifts. All Y-12ers welcome.

**Monday, September 30**

**BOWLING:** C League, 5:45 p.m. Ark Lanes.

**PHYSICAL FITNESS:** (Women) 7:30 p.m., Oak Ridge High School Girls' Gym.

**Tuesday, October 1**

**PHYSICAL FITNESS:** (Men) 7:30 p.m., Oak Ridge High School Gym.

**PISTOL LEAGUE:** 6:15 p.m., Oak Ridge Sportsmen's Association.

**Wednesday, October 2**

**22 CALIBRE RIFLE LEAGUE:** 7 p.m., Anderson County Gun Club, Clinton.

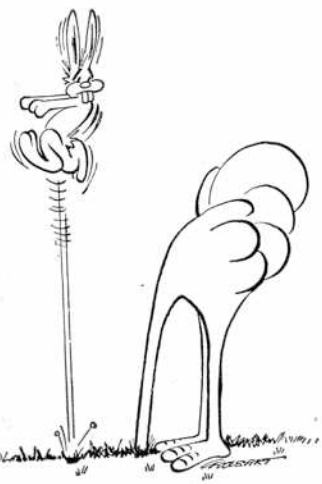
**BOWLING:** Mixed League, 8 p.m., Ark Lanes.

**Thursday, October 3**

**BOWLING:** Classic League, 5:45 p.m., Ark Lanes.

### THE RUSSIAN BOAR

How come, asks the outlander, that you have Russian boars in the wilds of Tennessee? Don't let your ignorance show. Tell him that 14 wild pigs from Prussia escaped from a private preserve in 1920, in North Carolina, and their descendants now roam the Great Smoky Mountains.



## Three Teams Tie In Mixed Alleys

Three big teams dominate the Mixed Bowling League this week, as the Alley Cats overcame the Twisters, to move up in the magic circle. They took the only four-point win of the week. Winning three were the Roses 'N Thorns over the Rollers, and the Mustangs over the Hits & Misses.

Lou Sahr, Twisters, took top singles honors, rolling a 171 scratch, 201 handicap game. Her 461 scratch series was high also. Dessie Worley, Roses 'N Thorns, rolled a 566 handicap series. On the men's side it was B. Manthey, Alley Cats, with 194 scratch, 229 handicap single . . . a 530 scratch, 635 handicap series.

The Alley Cats rolled high scratch singles of 631 . . . and the Roses 'N Thorns put an 806 handicap single on record. The Alley Cats' 1760 scratch series was high; while the R 'N T team rolled a 2321 handicap series.

League standings follow:

Team	W	L
Roses 'N Thorns	8	4
Goofers	8	4
Alley Cats	8	4
Mustangs	7	5
Hits & Misses	5½	6½
McSprays	5½	6½
Twisters	5	7
Rollers	1	11

## State Parks System Meeting Planned

The Tennessee Citizens for Wilderness Planning will meet Thursday, October 3, at 7:30 p.m., in Fellowship Hall, First Presbyterian Church, Oak Ridge, located on the Oak Ridge Turnpike at Lafayette Avenue.

A panel discussion and slide show will be held to examine the future needs of the Tennessee State Parks System. Mrs. Liane Russell, Biology Division, ORNL, president of TCWP, said the speakers will be:

Mr. Boswell, Director, Division of State Parks, Tennessee Department of Conservation.

Mr. Robert J. Bible, Kingsport, member of the Tennessee Legislature. (Several other members of the legislature have been invited to the meeting.)

Dr. Rodney J. Davis, Reactor Chemistry, ORNL, one of the founders of TCWP; particularly interested in park planning.

Moderator: Ernest M. Dickerman, Vice President, TCWP; consultant, Wilderness Society; conservation chairman, Smoky Mountain Hiking Club; winner of 1967 General Motors conservation award.

Mack S. Prichard, State Parks Naturalist, will show slides of scenic areas which are or could be in the Tennessee State System.

Mrs. Russell said that one special consideration would be the possibility of a "natural areas act" for Tennessee, which would keep certain portions of state parks free of "developments."

The public is cordially invited to attend the meeting and to participate in the discussion.

## 22-Calibre Riflers To Begin October 2

The 22 calibre rifle league will begin next Wednesday, October 2, at 7 p.m. at the Anderson County Gun Club, Clinton.

Any Carbider interested in firing in this league may show up next Wednesday, or may contact Bill Sims, extension 3-7777, or Jerry Holcombe, 3-5005.

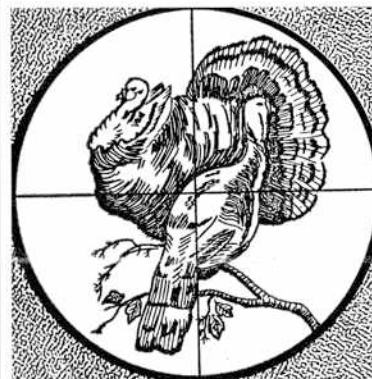
### DEFINITION

Tact is making guests feel at home when you wish they were.



**JOHN KIMSEY, EAGLES**, is the proud owner of a belt buckle, compliments of the American Bowling Congress for being the most improved league bowler for last season. He is seen above receiving his buckle from League Secretary Roy Roberts, left. The 16-team began action recently on Thursday nights to work its way through the winter season.

## Turkey Shoot Planned Saturday By Shifters



E, F, G, H and J Shiftmen are setting a big Turkey Shoot for Saturday, September 28. Relays get underway at 10 a.m. at the Oak Ridge Sportsmen's Association range.

All Y-12ers and their shooting families are welcome at Saturday's big shoot-out. Ammo is supplied at the shoot, so do not bring any. Cost is 25 cents per shot to cover cost of ammunition.

Each family is limited to two turkeys.

## Pistol Course Will Be Offered

The Oak Ridge Sportsmen's Association—Rifle and Pistol Club will again offer the Basic Pistol course under the auspices of the National Rifle Association by NRA certified instruction and instructors at the O.R.S.A. indoor range.

Classes are two-hour periods on Fridays from 7 to 9 p.m. beginning October 18 for six class periods. Class size is limited to 20 students.

Only the .22 calibre target pistol is used and students are taught safety, handling, and target techniques for this growing sport. Students are awarded the NRA certificate upon completion and this enables them to enter in competitive matches.

The cost of \$2 covers books and targets. About 200 .22 Calibre Long Rifle Standard Velocity rounds will be needed for practice during the course. For further information contact Vernon Raaen, 3-6973, ORNL; or Bob Barnard, 3-3146, ORGDP.

## Has Beens Early Classic Leaders

The Classic Bowling League got down to serious bowling last week, with three teams taking big four-point victories. The Rebels romped over the Rippers, the Smelters sailed past the Bumpers and the Tigers took the Swingsters.

Winning three the Eagles moved up in standings by downing the Cubs, and the Markers marked three over the All Stars. Also winning three were the Eightballs over the Playboys and the Screwballs by the Pinbusters. The Has Beens and Splinters shared two.

Bill Ladd, Swingsters, rolled high scratch scores . . . singles of 234, series of 613. L. E. Sikes, Rebels, put a 260 handicap single down, and Jack McLendon, Has Beens, rolled a rollicking 680 handicap series.

Team honors went in four directions . . . the Markers in single scratch, 893; the Screwballs, singles handicap, 1026 . . . the Swingsters in scratch series, 2501; and the Rebels in handicap series 2940.

League standings follow:

Team	W	L
Has Beens	9	3
Eagles	8	4
Markers	8	4
Splinters	7	5
Rebels	7	5
Swingsters	6	6
Playboys	6	6
Eightballs	6	6
Screwballs	6	6
Smelters	6	6
Tigers	6	6
Bumpers	5	7
Pinbusters	5	7
All Stars	5	7
Rippers	4	8
Cubs	2	10

## 'Junior' Rifle Course Planned At Clinton

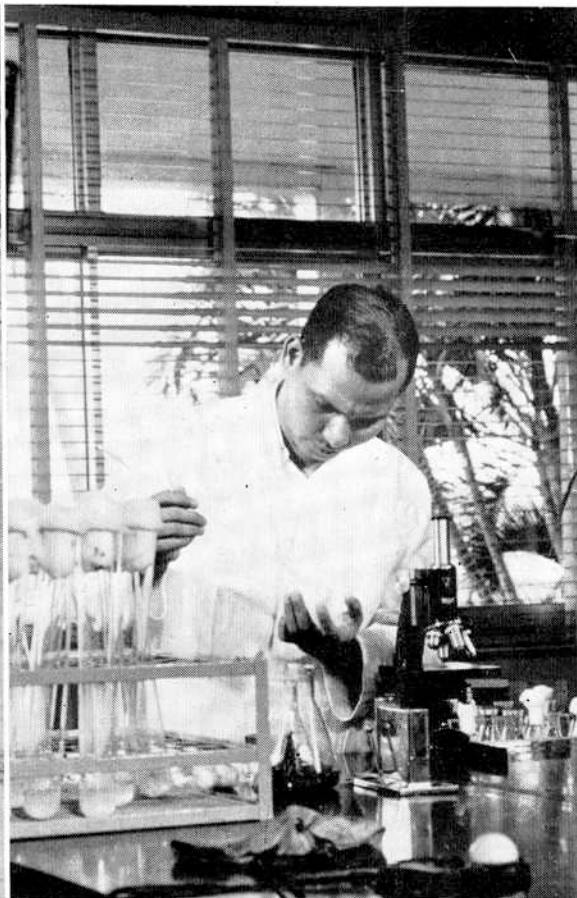
A basic rifle marksmanship training course for boys and girls between the ages of 11 and 18 will begin Tuesday, October 1. It will be held at 7 p.m. at the Anderson County Gun Club, Clinton.

Details may be obtained from V. A. McKay, or Jim Eldridge, extension 3-6566.

### LAZY EYE BLINDNESS

One in every 20 preschool-age children in the United States is affected by amblyopia (lazy eye blindness) and other vision problems which can usually be corrected if discovered and treated before school age.





**IMPROVED TECHNOLOGY TO HELP AVERT FUTURE MASS STARVATION** in the emerging nations will be seen in "THE FOOD REVOLUTION" episode on "The 21st Century" Sunday, September 29, at 6 p.m., EDT, in color on the CBS Television Network. At left, applying new technology in the field to make planted land produce more, a farmer at the International Rice Research Institute in the Philippines, uses a grader in a rice paddy to level soil under the water in preparation for planting. At right, in the Institute's laboratory, a research in the development of improved rice varieties, tests rice to determine if there is any disease. 'The 21st Century' is carried in this area by WBIR-TV, Channel 10.



More Y-12ers move into veteran status as October makes its bright appearance on the scene. Congratulations to the Union Carbide Corporation vets.

#### 25 YEARS

**William H. Donahue**, General Foundry, September 27.

**Edwin T. Oliver**, Process Maintenance, September 27.

**Dave Turner**, Fire Department, September 30.

**Spencer D. White**, Buildings, Grounds and Maintenance Shops, September 30.

**Sylvia P. Hatmaker**, Chemical Services, October 1.

#### 20 YEARS

**Altus D. Tucker**, Guard Department, September 26.

**Clarence Brown**, Dimensional Inspection, September 28.

**C. A. Hall Jr.**, Guard Department, September 28.

#### 15 YEARS

**Thomas R. Kirkland**, Research Services, September 28.

**Edward Luttrell**, Process Maintenance, September 28.

**Murray A. Parrish**, General Can Fabrication Shop, September 28.

**Kimsey H. Hamby**, Utilities Administration, September 30.

**John E. Llewellyn**, Utilities Administration, September 30.

**Robert P. Putman**, Process Maintenance, September 30.

#### 10 YEARS

**Wilson B. Asbury**, A-2 Shops, 9212, September 29.

**William D. Burnette**, Tool Grinding, September 29.

**Thomas L. Wheeler**, Alpha Five Machine Shop, September 29.

#### POPULATION COUNT

It is estimated that our population increases by one every 10.5 seconds. Nice to know that even if we can't control the population explosion, we have at least learned to time it.

## 'Food Revolution' May Stave Off Starvation For 21st Century Man

By the twenty-first century man will probably have the scientific and agricultural capability to feed himself; but will he?

That is one of the major questions raised by "The 21st Century" when it explores "The Food Revolution," Sunday, September 29, at 6 p.m., EDT, in color over the CBS Television Network. The program is carried in this area by WBIR-TV, Channel 10.

"The stark facts are that the population will double by the twenty-first century," says CBS News Correspondent Walter Cronkite, principal reporter for the series which is sponsored in the public interest by Union Carbide Corporation.

There are three ways the food supply might be increased by that time, Cronkite points out. "Use old land more efficiently. Use new land. Forget about land and build food in the laboratory," he reports.

"All three methods will work for the well fed nations," Cronkite continues. "The consumer may help himself to a 'soybean steak' or a 'bacteria burger,'" he adds.

"But will they work in countries where simple pests destroy 50 percent of the harvest . . . where there is no more open land . . . where there is neither time nor money to build laboratories," he asks.

"The 21st Century" will show how today's scientists are seeking these answers to tomorrow's problems in experimental programs conducted in three areas:

- "Aquiculture" — the harvesting of immense food resources of the oceans. Scientists' efforts in producing larger and meatier fish through selective breeding, hormone injections and nutrition supplements will be shown.

- "Test tube farming" — the moving of food production off the land and into the laboratory. Mi-

cro-organisms such as yeast and bacteria as a direct source of food protein is being investigated. Single Cell Protein has already been "farmed" and successfully tested on animals.

- Increasing land efficiency — The cross breeding of rice in the Philippines to provide healthier strains with higher yield, as well as studies to control the process by which plants grow, will be explored.

One result of the latter area of study is the development of a pre-fabricated, closed-circuit system which could desalt ocean water for irrigating the deserts. Such a system could also provide power to a surrounding community and operate a greenhouse in which food would be grown.

As a result of the scientific and technological revolution in agriculture, Cronkite points out, man may be able to feed himself in the twenty-first century.

"But the real question is whether the world will use this technology for the benefit of all people," he states.

"The Food Revolution" was written by Judy Towers. Fred Warshofsky is science editor for "The 21st Century" and Isaac Kleinerman is producer with Burton Benjamin as executive producer.

Sunday, WBIR-TV, Channel 10, at 6 p.m.

## High Z Nuclei Is Physics Seminar Topic

P. H. Fowler, NCAR Scientific Balloon Flight Station, Palestine, Texas, is guest speaker at this week's Physics Division seminar. His subject, "Discovery of Very High Z Nuclei in Cosmic Rays."

The seminar is set for Thursday, September 26, at 3:15 p.m. in the East Auditorium of ORNL's 4500 building.



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NUCLEAR DIVISION  
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## Union Carbide Designed Lime Kiln Produces High-Quality Steel Product

A new 300-ton-per-day lime kiln recently began lime production at CF&I Steel Corporation in Pueblo, Colorado. The unit was built to provide a dependable supply of high-quality lime for CF&I's two 115-ton capacity basic-oxygen furnaces.

The new kiln is a proprietary vertical type that allows high production rates at low operating costs. It was designed and engineered by the Mining and Metals Division of Union Carbide Corporation, which licensed CF&I to build it. The new kiln replaced two kilns of another type.

Limestone for the new kiln comes from CF&I's Monarch Quarry near Salida, Colorado. The stone is shipped by rail 120 miles to the Pueblo plant.

Up to 150 lb. of lime per ingot ton of steel are used in basic-oxygen furnaces. Unlike other steel-making facilities, basic-oxygen furnaces use lime rather than limestone as a slag-forming material so that valuable heat and lime are not lost in calcining limestone to lime. Lime, oxygen, scrap, and molten pig iron are the principal materials going into the basic-oxygen steelmaking processes.

CF&I decided to build and operate the new high-capacity kiln so that it could obtain a continuous supply of lime for its current needs. In the past the plant had been buying some lime to supplement on-side production.

The Union Carbide-designed kiln can be operated continuously for 51 of the 52 weeks in a year with only minor maintenance. The capital investment per ton of annual capacity is lower than for similarly sized kilns. Fuel, labor, and maintenance costs are also extremely low.

In addition, CF&I's 115-ft. high kiln is highly flexible. It can be run as low as 150 tons per day or as high as 330 tons per day without any appreciable change in lime quality or fuel efficiency.

In order to handle small limestone feed sizes, the approximately 9 ft. by 14 ft. cross-section of the shaft has been divided into four compartments by means of vertical refractory walls. Thus, the kiln can handle 1 in. x 3 in. limestone feed.

Two tiers of burner beams inject fuel uniformly into the stone

burden, where it burns with a controlled amount of air. The hot gases of combustion are then drawn up uniformly through the burden, solving the heat distribution problem that has plagued previous vertical kilns. The kiln is completely automatic and has a minimum of moving parts, reducing labor and maintenance costs.

Before CF&I selected the Union Carbide kiln, the steelmaker shipped large amounts of limestone from its Monarch Quarry to a Union Carbide kiln in Ft. Morgan, Colorado for calcining. The lime produced was then tested extensively in CF&I's basic-oxygen furnaces and its performance was found to be equal to other available commercial limes.

The CF&I kiln is the 15th Union Carbide kiln to be put into production. These kilns range in production capacity from 100 to 680 tons per day and produce lime for use in steelmaking, soda-ash production, beet-sugar processing, calcium carbide smelting, bauxite processing, ore treatment, water treatment, and soil stabilization.

## October Is UF Month For Y-12

October 1 marks the kick-off for the United Fund Drive in Y-12. This issue of the Y-12 Bulletin features a six-page edition, to herald the drive. There will be five Bulletins in October (five Wednesdays) and each issue will feature news of the drive's progress.

In next week's Bulletin we will feature statements from Glenn A. Atchley, Charles R. Robinson, and George W. Evans. Atchley will be chairman for the drive for the guard union; Robinson for the ATLC; and Evans for the salaried employees in the plant.

Details on drive plans will be outlined beginning next week.

## Silent Clams

Continued from Page 1  
ter and river water contained higher concentrations of dissolved minerals 1,000 to 2,000 years ago than they do today, thus the abrupt shift to an agricultural economy from a forested landscape resulted in significant changes in the disposition of certain chemical elements in the environment.

A knowledge of these changes is important to the maintenance and improvement of the biological productivity of the environment for the benefit of man, since the requirements of an increasing population for food and recreation are dependent upon maintaining a desirable ecological balance of nature.

## RAISON D'ETRE

Junior brought home a note from school. The teacher wanted a written excuse for his presence.

## One Gift Works Many Wonders



**GIVE THE UNITED WAY**